ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 258

[FRN]

RIN: 2050-AE07

Project XL Site-specific Rulemaking for Yolo County Landfill, Davis, Yolo County, California

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is today proposing a site-specific rule to implement a project under the Project XL program, an EPA initiative to allow regulated entities to achieve better environmental results at decreased costs. Today's proposal would provide regulatory flexibility under the Resource Conservation and Recovery Act (RCRA), as amended, for the Yolo County Landfill, Davis, Yolo County, California.

Yolo County has proposed a project under EPA's Project XL to use certain bioreactor techniques at its municipal solid waste landfill (MSWLF), specifically the addition of bulk or non-containerized liquid wastes into the landfill to accelerate the biodegradation of landfill waste and decrease the time it takes for the waste to stabilize in the landfill. The principal objective of this bioreactor XL project is to evaluate waste decomposition rates when leachate is supplemented with other liquid additions. In order to carry out this project, Yolo County would need relief from certain requirements in EPA regulations which set forth operating criteria for MSWLFs and preclude the addition of bulk or non-containerized liquid wastes. To achieve the objectives of the project, today's

proposed rule would provide regulatory flexibility from Liquid Restrictions, which precludes the addition of bulk or non-containerized liquid wastes. The Yolo County bioreactor project is one of several bioreactor XL projects currently being considered by EPA.

DATES: Public Comments: Comments on the proposed rule must be received on or before [INSERT DATE 30 days after publication].

Public Hearing: Commentors may request a public hearing by [INSERT DATE 14 days after publication] during the public comment period. Commentors must state the basis for requesting the public hearing. If EPA determines there is sufficient reason to hold a public hearing, it will do so no later than [INSERT DATE 21 days after the publication date], during the last week of the public comment period. Requests for a public hearing should be submitted to the address listed below. If a public hearing is scheduled, the date, time, and location will be made available through a Federal Register notice or by contacting Sherri Walker at the EPA Headquarters office (see ADDRESSES section).

ADDRESSES: Request to Speak at Hearing: Requests to speak at a hearing should be mailed to the RCRA Information Center Docket Clerk (5303G), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. N.W., Washington, D.C. 20460. Please send an original and two copies of all comments and refer to Docket Number F-2000-YCLP-FFFFF. A copy should also be to Ms. Sherri Walker at the U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. N.W. (1807), Washington D.C. 20460.

Comments: Written comments should be mailed to the RCRA Information Center Docket Clerk (5305W), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. N.W., Washington,

D.C. 20460. Please submit an original and 3 copies of written comments as well as an original and 3 copies of any attachments, enclosures, or other documents referenced in the comments and refer to Docket Number F-2000-YCLP-FFFFF. A copy should also be sent to Ms. Sherri Walker at the U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., N.W., (1807) Washington D.C. 20460.

EPA will also accept comments electronically. Comments should be addressed to the following Internet address: walker.sherri@epa.gov. Electronic comments must be submitted as an ASCII, WordPerfect 5.1/6.1/8 format file and avoid the use of special characters or any form of encryption. Electronic comments will be transferred into a paper version for the official record. EPA will attempt to clarify electronic comments if there is an apparent error in transmission.

Viewing Project Materials: A docket containing the proposed rule, supporting materials, and public comments is available for public inspection and copying at the RCRA Information Center (RIC) located at Crystal Gateway, 1235 Jefferson Davis Highway, First Floor, Arlington, Virginia. The RIC is open from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding federal holidays. The public is encouraged to phone in advance to review docket materials. Appointments can be scheduled by phoning the Docket Office at (703) 603-9230. Refer to RCRA Docket Number F-2000-YCLP-FFFFF. The public may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies are $0.15 per page. Project materials are also available for review for today's action on the world wide web at https://www.epa.gov/projectxl/.

A duplicate copy of the docket is available for inspection and copying at the regional office in which the landfill project is located.

FOR FURTHER INFORMATION, CONTACT: Ms. Sherri Walker at the U.S. Environmental Protection Agency, 1200 Pennsylvania Ave. N.W. (1807), Washington D.C. 20460, (202) 260-4295, walker.sherri@epa.gov.

SUPPLEMENTARY INFORMATION:

The proposed rulemaking would amend 40 CFR 258.28(a) by adding a new 40 CFR 258.28(a)(3) and will create a new section, 40 CFR 258.41. Section 258.28(a) currently prohibits application of bulk or noncontainerized liquid waste into a municipal solid waste landfill unit unless: (1) the waste is household waste other than septic waste; or (2) leachate or gas condensate derived from the landfill unit and the unit is designed with a specific composite liner meeting the requirements of 40 CFR 258.40(b), as incorporated by 40 CFR 258.40(a)(2). The proposed rulemaking would create a third exception to the prohibition pertaining to the application of bulk or noncontainerized liquid waste by referring to the new section 40 CFR 258.41, pertaining to Project XL Bioreactor Landfills.

This proposed rule will add new section 40 CFR 258.41. Section 258.41(b) will apply only to Module D of the Yolo County Landfill in Davis, California. Currently, Module D of the Yolo County Landfill, which otherwise conforms to the requirements of 40 CFR 258.40(a)(2), has a composite liner which not only meets, but exceeds the requirements set forth at 40 CFR 258.40(b). Thus, Module D of this Landfill can, under federal law, not only currently add household liquid waste, other than septic waste, but can also recirculate leachate or condensate gas derived from the landfill unit. Today's proposed rule would allow the owner/operator of the Yolo County Landfill to also add other types of liquid waste to Module D of the Landfill. The proposed rule will become effective only after promulgation of the final rule in the Federal Register.

This proposed rulemaking allowing for addition of other types of liquid waste into Module D of the Yolo County Landfill requires compliance with each of the design, monitoring, recordkeeping, reporting, and operational requirements proposed under this rulemaking. It is also "conditional" on the issuance of a permit executed by the local air quality management district under the Clean Air Act, 42 U.S.C. 7401 *et seq.*, as set forth in the proposed rule. Upon completion of the rulemaking, these requirements and conditions are enforceable in the same way that current RCRA standards for solid waste landfills are enforceable to ensure that management of nonhazardous solid waste is performed in a manner that is protective of human health and the environment.

EPA is proposing to allow Yolo County to undertake this XL Project with the requested regulatory flexibility to determine if the addition of other types of liquid wastes will result in superior environmental performance and significant costs savings while remaining protective of human health and the environment.

Today's proposed rulemaking will not affect the provisions or applicability of any other existing or future regulations.

EPA is soliciting comment on this rulemaking. EPA will publish responses to comments in a subsequent final rule. The individual XL projects considered under future rulemakings will enter the implementation phase only when each of the rules addressing these other landfills have been promulgated. No addition or recirculation of other types of liquid waste beyond those currently allowed in accordance with 40 CFR 258.28(a) will occur at any proposed Project XL landfill until such time as a final rule relating to such landfill has been duly promulgated and all other appropriate federal, state and/or local permits and other applicable conditions have been fully satisfied.

Outline of Today's Document

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I. Authority

This rule is proposed under the authority of sections 1008, 2002, 4004, and 4010 of the Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act, as amended (42 U.S.C. 6907, 6912, 6945, and 6949).

II. Background

A. What is Project XL?

Project XL is an EPA initiative to allow regulated entities to achieve better environmental results at less cost. Project XL -- "eXcellence and Leadership" -- was announced on March 16, 1995 as a central part of the National Performance Review and EPA's efforts to reinvent environmental protection. See 60 FR 27282 (May 23, 1995). Specifically, Project XL gives a limited number of regulated entities the opportunity to develop their own pilot projects and alternative strategies to achieve environmental performance that is superior to what would be achieved through compliance with current and reasonably anticipated future regulations. These efforts are crucial to the Agency's ability

to test new regulatory strategies that reduce regulatory burden and promote economic growth while achieving better environmental and public health protection. The Agency intends to evaluate the results of this and other XL projects to determine which specific elements of the projects, if any, should be more broadly applied to other regulated entities for the benefit of both the economy and the environment.

Project XL is intended to allow EPA to experiment with untried, potentially promising regulatory approaches, both to assess whether they provide benefits at the specific facility affected, and whether they should be considered for wider application. Such pilot projects allow EPA to proceed more quickly than would be possible when undertaking changes on a nationwide basis. EPA may modify rules, on a site- or state-specific basis, that represent one of several possible policy approaches within a more general statutory directive, so long as the alternative being used is permissible under the statute.

Adoption of such alternative approaches or interpretations in the context of a given XL project is not an indication that EPA plans to adopt that interpretation as a general matter or even in the context of other XL projects. It would be inconsistent with the forward-looking nature of these pilot projects to adopt such innovative approaches prematurely on a widespread basis without first determining whether or not they are viable in practice and successful for the particular projects that embody them. These pilot projects are not intended to be a means for piecemeal revision of entire programs.

EPA believes that adopting alternative policy approaches and/or interpretations, on a limited, site- or state-specific basis and in connection with a carefully selected pilot project, is consistent with the expectations of Congress about EPA's role in implementing the environmental statutes (so long as

EPA acts within the discretion allowed by the statute). Congress' recognition that there is a need for experimentation and research, as well as ongoing reevaluation of environmental programs, is reflected in a variety of statutory provisions, e.g., section 8001 of RCRA, (42 U.S.C. 6981).

Under Project XL, participants in four categories (facilities, industry sectors, governmental agencies, and communities) are offered the opportunity to develop common sense, cost-effective strategies that will replace or modify specific regulatory requirements on the condition that they produce and demonstrate superior environmental performance. To participate in Project XL, applicants must develop alternative pollution reduction strategies pursuant to eight criteria: (1) superior environmental performance; (2) cost savings and paperwork reduction; (3) stakeholder involvement and support; (4) test of an innovative strategy; (5) transferability; (6) feasibility; (7) identification of monitoring, reporting, and evaluation methods; and (8) avoidance of shifting risk burden. The project must have full support of affected federal, state, and tribal agencies to be selected. For more information about the XL criteria, readers should refer to two descriptive documents published in the Federal Register (60 FR 27282, published May 23, 1995 and 62 FR 19872, published April 23, 1997) and the document entitled "Principles for Development of Project XL Final Project Agreements," dated December 1, 1995.

Development of a Project has four basic phases: the initial pre-proposal phase where the project sponsor comes up with an innovative concept that it would like EPA to consider as an XL pilot; the second phase where the project sponsor works with EPA and interested stakeholders in developing its XL proposal; the third phase where EPA, local regulatory agencies, and other interested stakeholders review the XL proposal; and the fourth phase where the project sponsor works with

EPA, local regulatory agencies, and interested stakeholders in developing the Final Project Agreement and legal mechanisms. The XL pilot proceeds into the implementation phase and evaluation phase after promulgation of the required federal, state and local legal mechanisms and after the designated participants sign the FPA.

The FPA is a non-binding written agreement between the project sponsor and regulatory agencies. The FPA contains a detailed description of the proposed pilot project. It addresses the eight Project XL criteria and discusses how EPA expects the project to meet that criteria. The FPA identifies performance goals and indicators which will enable the project sponsor to demonstrate superior environmental benefits. The FPA also discusses administration of the agreement, including dispute resolution and conditions for termination of the agreement. On August 29, 2000, EPA published a notice in the Federal Register requesting comments on the FPA for the Yolo County bioreactor landfill XL Project. EPA received no comments on the FPA during the 14 day public comment period. In the event that Yolo County, EPA Region 9's Regional Administrator and the state of California agree to extend this proposed rule beyond Phase I of Module D, another Final Project Agreement will be entered into.

B. What are Bioreactor Landfills?

A bioreactor landfill is generally defined as a landfill operated to transform and stabilize the readily and moderately decomposable organic constituents of the waste stream by purposeful control to enhance microbiological processes. Bioreactor landfills often employ liquid addition including leachate recirculation. A byproduct of the decomposition process is landfill gas, which includes methane, carbon dioxide, and volatile organic compounds (VOC's). Landfill gases are produced sooner in a bioreactor

than in a conventional landfill. Therefore, bioreactors often incorporate state-of-the-art landfill gas collection systems.

On April 6, 2000, EPA published a document in the Federal Register requesting information on bioreactor landfills, because the Agency is considering whether and to what extent the Criteria for Municipal Solid Waste Landfills, 40 CFR part 258, should be revised to allow for leachate recirculation over alternative liners in MSWLFs. (65 FR 18015). EPA is seeking information about liquid additions and leachate recirculation in MSWLFs to the extent currently allowed, i.e., in MSWLFs designed and constructed with a composite liner as specified in 40 CFR 258.40(a)(2).

Proponents of bioreactor technology note that operation of MSWLFs as bioreactors provide a number of environmental benefits, including: (1) increasing the rate of waste decomposition, which in turn would extend the operating life of the landfill and lessen the need for additional landfill space or other disposal options; (2) decreasing, or even eliminating, the quantity, and increasing the quality, of leachate requiring treatment and offsite disposal, leading to decreased risks and costs associated with leachate management, treatment and disposal; (3) reduced post-closure care costs and risks, due to the accelerated, controlled settlement of the solid waste during landfill operation; (4) lower long term potential for leachate migration into the subsurface environment; and (5) opportunity for recovery of methane gas for energy production.

EPA is also considering several XL pilot projects involving operation of landfills as bioreactors throughout the country. These landfill projects will enable EPA to evaluate benefits of different alternative liners and leachate recirculation systems under various terrains and operating conditions. As expressed in the above-referenced April 2000 Federal Register document, EPA is interested in

assessing the performance of landfills operated as bioreactors, and these XL projects could contribute valuable data.

The Yolo Country XL project and other XL projects would provide additional information on the performance of MSWLFs when liquids are added to the landfill. The Agency is also interested in determining whether and which types of alternative liners are capable of meeting the design performance standard including maintaining a hydraulic head at acceptable levels.

The terms of the Yolo County bioreactor project are contained in a Final Project Agreement (FPA). EPA sought public comment on the draft FPA on August 29, 2000. The Final Project Agreement is available to the public at the EPA Docket in Washington, D.C., in the EPA Region 9 library, and on the world wide web at https://www.epa.gov/projectxl/.

III. Overview of the Yolo County Landfill XL Project

The Yolo County Central Landfill (YCCL) is an existing non-hazardous municipal waste landfill with two surface impoundments for disposal of selected non-hazardous liquid wastes. This site encompasses 722 acres and is owned and operated by Yolo County. It is located at the intersection of Road 104 and Road 28H, 2 miles northeast of the City of Davis, California. The YCCL was opened in 1975 for the disposal of non-hazardous solid waste, construction debris, and non-hazardous liquid waste. Existing on-site operations include an eleven-year old landfill methane gas recovery and energy generation facility, a drop-off area for recyclables, a metal recovery facility, wood and yard waste recovery and processing area, and a concrete recycling area.

Adjacent land uses include the City of Davis Wastewater Treatment Plant lagoons located immediately east and south of the landfill and the Willow Slough By-pass which runs parallel to the

southern boundary of the site. The remainder of land uses adjacent to the site are agricultural (row crops).

Groundwater levels at the facility fluctuate 8 to 10 feet during the year, rising from the lowest in September to the highest around March. Water level data indicate that the water level table is typically 4 to 10 feet below ground surface during the winter and spring months. During the summer and fall months, the water table is typically 5 to 15 feet below ground surface. In January 1989, the County of Yolo constructed a soil/bentonite slurry cutoff wall to retard groundwater flow to the landfill site from the north. The cutoff wall was constructed along portions of the northern and western boundaries of the site to a maximum depth of 44 feet and has a total length of 3,680 feet, 2,880 feet along the north side and 800 feet along the west. In the fall of 1990, irrigation practices to the north of the landfill site were altered to minimize the infiltration of water. Additionally, sixteen groundwater extraction wells were installed south of the cutoff wall in order to lower the water table south and east of the wall. The purpose was to depress the water table to provide vertical separation between the base of the landfill and the groundwater.

Yolo County proposes to operate the next phase of its landfill module (Module D) as both an anaerobic and aerobic bioreactor. Twelve acres of the 20-acre module have been constructed (Phase I). Ten acres would be operated as a full scale anaerobic bioreactor, while the remaining two acres would be operated as an aerobic pilot demonstration cell.

A. What kind of liner is required by current federal regulations?

Currently, the federal regulations outline two methods for complying with liner requirements for municipal solid waste landfills. The first method is a performance standard set out under 40 CFR

258.40(a)(1). This standard allows installation of any liner configuration provided the liner design is approved by an EPA approved state and the design ensures that certain constituent concentrations are not exceeded in the uppermost aquifer underlying the landfill facility at the point of compliance.

The second method is set out in 40 CFR 258.40(a)(2) and (b). Section 258.40(b) specifies a specific liner design which consists of two components: (1) an upper component comprising a minimum of 30 mil flexible membrane liner (60 mil if High Density Polyethylene (HDPE) is used); and (2) a lower component comprising at least two feet of compacted soil with a hydraulic conductivity no greater than $1x10^{-7}$ cm/sec.

B. What Solutions are Proposed by the Yolo County XL Project?

The bottom liner system of Module D was designed to exceed the requirements of Subtitle D of the Federal guidelines and was upgraded from other liner systems used previously at the site. The County believes that, given the constructed configuration and the stringent monitoring and operational requirements proposed for Module D, the proposed liner system will be suitable for use in the bioreactor operations.

The Module D liner and leachate collection system consists, from top to bottom, of a 2 foot thick chipped tire operations/drainage layer (k> 1 cm/sec), a blanket geocomposite drainage layer, a 60-milliliter (mil) High Density Polyethylene (HDPE) liner, 2 feet of compacted clay ($k<6 \times 10^{-9}$ cm/sec), 3 feet of compacted earth fill ($k< 1 \times 10^{-8}$ cm/sec), and a 40 mil HDPE vapor barrier layer[1].

The permeability (k) of the clay liner, as constructed, is on the average about 6×10^{-9} cm/sec

[1] Golder Associates, "Final Report, Construction Quality Assurance, Yolo County Central Landfill, WMU 6, Module D, Phase 1 Expansion", December 1999.

and the earth fill averaged about 1 x 10^{-8} cm/sec. These two layers in effect provide a 5 foot thick composite liner. It is anticipated that this liner system, coupled with the lower permeability, will result in a significantly more effective barrier to leachate migration than the prescriptive liner system.

The liner system within the collection trenches and sump areas was upgraded further to a double composite liner to account for infringement on the 5 foot groundwater offset and to minimize potential leakage in these critical collection areas where head on the primary liner will be at its greatest. Specifically, the liner and leachate collection system in the collection trenches and sumps consists, from top to bottom, of a minimum of 2 feet of gravel drainage material, a protective geotextile layer, a blanket geocomposite drainage layer, a primary 60-mil HDPE liner, a geosynthetic clay liner (GCL) ($k< 5 \times 10^{-9}$ cm/sec), a secondary 60-mil HDPE liner, 2 feet of compacted clay ($k< 6 \times 10^{-9}$ cm/sec), a minimum of 0.5 feet of compacted earth fill ($k< 1 \times 10^{-8}$ cm/sec), and a 40-mil HDPE vapor barrier layer. The thickness of the compacted earth fill actually varies from a minimum at the south end of the trench of 0.5 feet to a maximum of about 2.5 feet at the upper, north end of the leachate collection trench. Leachate collection pipes were also placed in the collection trench and at other locations on top of the primary liner to transport leachate immediately to the sumps for recovery, removal, and recirculation, as needed.

As described above, the more rigorous Module D leachate collection and recovery system (LCRS) and liner system is expected to outperform the Subtitle D liner design requirements. The LCRS has been designed and constructed to be free-draining throughout the life of the module and will maintain less head over the primary liner system than the type of liner prescribed by Subtitle D.

For the anaerobic operation, it is estimated that during peak liquid additions, up to 10 gallons

per minute (gpm) of liquid per 10,000 square feet (.1 gpm per 100 square feet) of disposal area will typically be delivered to the waste once the module has reached its design height. Based on a previous smaller scale demonstration cell, the amount of liquid added would be in the range of 30 to 50 gallons per ton of waste. According to results of the bioreactor demonstration project by Moore et al.[2], the average leachate generated during liquid introduction peaked at about 47% of the liquid delivery rate, which would equate to approximately 20 gpm per acre for the proposed program. Given a 10 acre drainage area, the total anticipated flow into any given sump would be approximately 200 gpm (288,000 gallons per day) assuming there will be no preferred pathways within the waste mass.

For the aerobic operation, liquid will be added to waste at a faster rate since the aerobic reaction causes much of the water to evaporate. It is estimated that the range of water used will be 200 to 400 gallons of water per ton of waste.

Liquid will be applied during strategic periods to temporarily raise the moisture content of the waste to provide optimum conditions for rapid degradation and improved gas production. This liquid will initially consist of a mixture of leachate and condensate from other Waste Management Units and ground water (from the extraction wells) delivered through a series of pipes, drip irrigation, or other application systems either after the landfill reaches its design height or after an interim cover and gas collection system has been constructed to control the landfill gases generated. The water will continually be introduced (as needed) to raise the moisture content within the waste to near its field capacity. The liquid application system will be constructed such that the solution can be applied or

[2] Moore et al., "Hydraulic Characteristics of Municipal Solid Waste Findings of the Yolo County Bioreactor Landfill Project.", Thirteenth International Conference on Solid Waste Technology and Management, Philadelphia, PA, November 1997.

discontinued at designated locations to raise and lower the moisture within the waste.

Yolo County will monitor moisture content throughout the life of the module through the use of a network of moisture sensors to be installed during waste placement. A moisture sensor system used during a bioreactor demonstration project in Module B proved to be very effective and will be the basis for the layout in Module D. Specifically, the moisture sensors will be installed at 20-foot increments of depth at a spacing of about 100 feet on center. Using these sensors, the County can determine where liquid application can be increased or decreased to optimize the effectiveness of the system and to prevent build-up of head over the liner.

The County will measure the quantity of leachate and applied liquid throughout the life of the module. Once leachate is produced, it will supplement the system and be re-circulated, thereby reducing the amount of clean water used. Liquid will be quantified using flow sensors installed on the leachate discharge line, re-circulation line, and liquid application line. These sensors will provide direct flow readout for determining flow rates in the pipelines and the total flow of all the liquid used and leachate produced.

The County will also monitor the head over the liner after waste placement using a network of pressure transducers and sensors. These devices will be installed on the primary liner, immediately before waste placement, to provide measurements of the leachate depth. Several of these transducers were installed in the LCRS during the Module D construction.

In the event that the transducers indicate that the head is going to exceed the allowable value, the system will automatically start pumps to reduce the liquid level and shut-off valves to reduce the liquid application rate. These measures would be used to reduce the liquid application rate across the

entire module or specifically, in the area of head build-up. Generally, the County will only continue to apply the liquid until the gas generation phase of the unit is complete, at which time leachate production is anticipated to continually decrease until conclusion of the post-closure period. The County will also closely monitor the quality of the leachate to evaluate the system, determine the methods for future leachate treatment, and provide a basis for future use of similar bioreactors at the site or elsewhere.

Finally, the degradation and gas production of the waste is also related to the temperature within the decomposing waste. The effectiveness of both aerobic and anaerobic bioreactors is dependent on keeping within an optimum temperature range; therefore, the County will install temperature gauges to aid in the operation of the system. The temperature gauge network will be placed in a similar pattern to the moisture sensors at designated intervals throughout the waste mass.

For the Yolo County bioreactor landfill proposal, the superior environmental benefits include: (a) maximizing landfill gas control and minimizing fugitive methane and VOC emissions; (b) greater recovery of landfill methane; (c) landfill life extension and/or reduced landfill use; and (d) minimizing leachate-associated concerns.

a. Maximizing landfill gas control and minimizing fugitive methane and VOC emissions. Landfill gas contains roughly 50% methane, a potent greenhouse gas. In terms of climate effects, methane is second in importance only to carbon dioxide. Landfill gas also contains volatile organic compounds (VOC's) that are air pollutants of local concern. Yolo County will immediately begin collecting landfill gas by installing a gas collection system consisting of a surface permeable gas collection layer overlain by a cover of soil with an embedded membrane. Gas will be withdrawn such that this permeable layer beneath surface containment will be at a slight vacuum. This system will minimize the amount of landfill

gas emitted to the environment.

b. Expedited methane generation/recovery. In the Yolo bioreactor, the majority of the methane will be generated over a much earlier and shorter time period than a conventional landfill. This is expected to minimize the long-term low-rate methane generation often lost in conventional landfill practices.

c. Landfill life extension and/or reduced landfill use. The more rapid conversion of greater quantities of solid waste to gas reduces the volume of the waste. Settlement in the Yolo test cell is already over 18% in three years. Volume reduction translates into either landfill life extension and/or less landfill use. Thus, this bioreactor landfill will be able to accept more waste over its working lifetime. Additionally, fewer landfills may be needed to accommodate the same inflows of waste from a given population

d. Minimizing leachate-associated concerns. The bioreactor processes, both anaerobic and aerobic, have been shown in studies at many scales to reduce the concentration of many leachate pollutants. These include organic acids and other soluble organic pollutants. Since a bioreactor operation brings pH to near-neutral conditions, metals of concern are largely precipitated and immobilized in the waste.

C. What Regulatory Changes will be Necessary to Implement this Project?

1. Existing Liquids Restriction for MSWLFs (40 CFR 258.28)

EPA is proposing a site-specific rule to grant regulatory flexibility from 40 CFR 258.28 Liquid Restrictions, which precludes the addition of bulk or noncontainerized liquid waste. In its XL project, the County is proposing to add ground water from its extraction wells as a liquid amendment, as well as

other liquids such as gray-water from the local waste water treatment plant, septic waste, and food-processing waste that is currently being land applied. Liquid wastes such as these, which normally have no beneficial use, may beneficially enhance the biodegradation of solid waste in the landfill which is the subject of this project.

2. Proposed Site-Specific Rule

Today's proposal would amend 40 CFR 258.28(a) by adding a new paragraph §258.28(a)(3) to refer to a new section of the rules, §258.41. The new §258.41(b) would specifically apply to the Yolo County Landfill in Davis, California only and would allow Module D of that landfill to receive bulk or non-containerized liquid wastes as long as that module met the design criteria set forth in §258.41(b). Additionally, the proposed rule would impose certain minimum monitoring and reporting requirements on Yolo County, which, among other things, will facilitate EPA's evaluation of the project.

The reason that the existing regulation requires a leachate collection system and a composite liner design as specified in 40 CFR 258.40(a)(2) is to ensure that contaminant migration to the aquifer is controlled (56 FR 50978, 51056 (Oct. 9, 1991)). The proposed rule would not change the requirement in §258.28(a)(2) that a leachate collection system as described in §258.40(a)(2) be in place in order for leachate to be recirculated in the landfill unit. These requirements would be requirements of new §258.41(b) and Yolo County's proposed Module D would still be required to have leachate collection systems designed to maintain leachate over the liner at a depth of less than 30 cm. In addition, since Yolo County's design of its liner goes beyond the requirements of Subtitle D of the Federal Regulations, EPA believes that adding additional liquid wastes into Module D would not result in any increased leakage to groundwater from the bioreactor cells.

D. How Have Various Stakeholders Been Involved in this Project?

Stakeholder involvement and support for this concept has already been demonstrated by previous federal, state, and local support of this bioreactor concept. For example, in 1994, the Yolo County Planning and Public Works Department, initiated a demonstration project (Module B) to evaluate the Bioreactor Landfill concept for its Central Landfill near Davis, California. The construction phase of the project was funded by Yolo and Sacramento Counties ($125,000 each), the California Energy Commission ($250,000), and the California Integrated Waste Management Board ($63,000). More recent grant funding for the monitoring phase of the project has been received from the U. S. Department of Energy through the Urban Consortium Energy Task Force ($110,000), and the Western Regional Biomass Energy Program ($50,000). Greenhouse gas and emission abatement cost-effectiveness studies have recently been completed with $48,000 in support from the Federal Energy Technology Center/National Energy Technology Laboratory (hereafter, NETL). Further support, $462,000 recently committed by NETL, is enabling operation of the test cells for approximately 2 more years as well as helping prepare for the larger module operation. Furthermore, on January 26, 2000, the California Integrated Waste Management Board granted Yolo County $400,000 for the construction and testing of this full-scale bioreactor demonstration project.

Concerning local involvement for this XL project, Yolo County held a stakeholder meeting on June 5th, 2000 for the full-scale demonstration project. Other informational meetings have been held during the regular Waste Advisory Committee meetings to keep the community informed on the project. The County will also convene periodic meetings of the stakeholder group to provide updates on the project's progress during the duration of the XL agreement. A public file on this XL project has

been maintained at the website throughout project development, and the EPA will continue to update it as the project is implemented. Additional information is available at EPA's website at https://www.epa.gov/projectxl.

A detailed description of this program and the stakeholder support for this project is included in the Final Project Agreement, which is available through the docket or through EPA's Project XL site on the Internet (see ADDRESSES section of this preamble).

Yolo County has preliminarily identified the following stakeholders:

Direct Participants:

U. S. Environmental Protection Agency

Solid Waste Association of North America (SWANA)

Institute for Environmental Management (IEM)

California State Regional Water Quality Control Board, Central Valley Region 5

Yolo County Department of Environmental Health

Yolo-Solano Air Quality Management District

Commentors:

California Integrated Waste Management Board

California State Water Resources Control Board

California Air Resources Board

National Energy Technology Laboratory (NETL, previously FETC), U. S. Department of Energy

SWANA–California Gold Rush Chapter and Southern California Chapter

Yolo County Waste Advisory Committee

University of California at Davis

Geosynthetic Institute, Drexel University

Members of the General Public:

Yolo County Citizens

Natural Resources Commission

Sacramento County Public Works Department, Solid Waste Management Division

California Energy Commission

E. How Will this Project Result in Cost Savings and Paperwork Reduction?

As stated earlier, this project is expected to result in cost savings by virtue of assisting in an increased rate of decomposition of the waste placed in Module D of the landfill. The increased decomposition rate is, in turn, expected to extend the life of the landfill, and, potentially, result in direct cost savings to Yolo County. In addition, the methane generation and recovery operations are expected to yield increased methane recovery over a shorter time period, thereby resulting in increased energy generation for Yolo County beyond what would otherwise occur in a conventional landfill. Finally, no appreciable reduction in paperwork is anticipated.

F. How Long Will this Project Last and When Will it be Complete?

As with all XL projects testing alternative environmental protection strategies, the term of this XL Project is one of limited duration. Today's proposed rule would be in effect for five years. In the event that EPA determines that this project should be terminated before the end of the five year period

and that the site-specific rule should be rescinded, the Agency would withdraw this rule through a subsequent rulemaking. This will afford all interested persons and entities the opportunity to comment on the proposed early termination and withdrawal of regulatory authority, and the proposed termination would also include any proposal for an interim compliance period while Yolo County returned to full compliance with the existing requirements of 40 CFR part 258.

The FPA allows any party to the agreement to withdraw from the agreement at any time before the end of the five year period. It also sets forth several conditions that could trigger an early termination of the project, as well as procedures to follow in the event that EPA, the State or local agency seeks to terminate the project.

For example, an early conclusion would be warranted if the project's environmental benefits do not meet the Project XL requirement for the achievement of superior environmental results. In addition, new laws or regulations may become applicable during the project term which might render the project impractical, or might contain regulatory requirements that supersede the superior environmental benefits that are being achieved under this XL Project. Or, during the project duration, EPA may decide to change the federal rule allowing recirculation over alternative liners and the addition of outside bulk liquids for all Subtitle D landfills. In that event, the FPA and site-specific rule for this project would no longer be needed.

IV. Additional Information

A. How to Request a Public Hearing

A public hearing will be held, if requested, to provide opportunity for interested persons to

make oral presentations regarding this proposed rulemaking, in accordance with 40 CFR Part 25. Persons wishing to make an oral presentation on the proposed site specific rule at the Yolo County Landfill should contact Sherri Walker at the address given in the ADDRESSES section of this document. Any member of the public may file a written statement before the hearing or after the hearing to be received by EPA no later than fourteen days after publication of this proposed rulemaking. Written statements should be sent to EPA at the addresses given in the ADDRESSES section of this document. If a public hearing is held, a verbatim transcript of the hearing and written statements provided at the hearing will be available for inspection and copying during normal business hours at the EPA addresses for docket inspection given in the ADDRESSES section of this preamble.

B. How Does this Rule Comply With Executive Order 12866: Regulatory Planning and Review ?

Because this rule affects only one facility, it is not a rule of general applicability and therefore not subject to OMB review and Executive Order 12866. In addition, OMB has agreed that review of site specific rules under Project XL is not necessary.

C. Is a Regulatory Flexibility Analysis Required?

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq., generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and public comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. Only the definition of "small governmental jurisdiction"

is relevant here. 5 U.S.C. 601(5) defines "small governmental jurisdiction" to mean governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand. According to Yolo County officials, the county population in 1990 exceeded 150,000; thus, Yolo County does not qualify as "small governmental jurisdiction" within the meaning of 5 U.S.C. 601(5). Therefore, I certify that this proposed rule will not have a significant economic impact on a substantial number of small entities.

D. Is an Information Collection Request Required for this Project Under the Paperwork Reduction Act?

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* It is exempt from OMB review under the Paperwork Reduction Act because it is a site specific rule, directed to fewer than ten persons. 44 U.S.C. 3502(3),(10); 5 CFR 1320.3(c), 1320.4 and 1320.5.

E. Does This Project Trigger the Requirements of the Unfunded Mandates Reform Act?

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including cost benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments in the aggregate or to the private sector of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most

cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation of why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of the EPA regulatory proposal with significant Federal mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements. As used here, "small government" has the same meaning as that contained under 5 U.S.C. 601(5), that is, governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.

As discussed above, this proposed rule would have limited application. It applies only to the Yolo County landfill. If adopted, this proposed rule would result in a cost savings for Yolo County when compared with the costs it would have had to incur if required to adhere to the requirements contained in the current rule. EPA has determined that this proposed rule does not contain a Federal mandate that may result in expenditures of $100 million or more for state, local, or tribal governments, in the aggregate, or the private sector in any one year. Thus, today's, proposal is not subject to the requirements of section 202 and 205 of the UMRA. EPA has also determined that this proposed rule contains no regulatory requirements that might significantly or uniquely affect small governments.

F. How Does this Rule Comply with Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks?

Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997), applies to any rule that: (1) is determined to be "economically significant," as defined in Executive Order 12886; and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children and explain why the planned regulation is preferable to potentially effective and feasible alternatives considered by the Agency.

This proposed rule is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This proposed rule would allow for the addition of bulk or non-containerized liquid amendments over a liner that not only meets but exceeds the design requirements in 40 CFR 258.40(b). Modeling results predict that this liner is more protective than the prescribed composite liner. Therefore, no additional risk to public health, including children's health, is expected to result from this proposed rule.

G. How Does this Rule Comply With Executive Order 13132: Federalism ?

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." The phrase,

"Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This proposal would only affect one local governmental entity and state, and would provide regulatory flexibility for the state and local governmental entity concerned. Thus, Executive Order 13132 does not apply to this rule.

H. How Does this Rule Comply with Executive Order 13175: Consultation and Coordination with Indian Tribal Governments?

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes."

This proposed rule does not have tribal implications within the meaning of Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the

Federal government and Indian tribes, as specified in Executive Order 13175. The proposed rule would impose no new requirements or costs on tribal governments, nor does it alter the relationship or distribution of power or responsibilities between the Federal government and Indian tribes. Thus, Executive Order 13175 does not apply to this rule.

However, EPA identified two Native American communities in the vicinity of the Yolo County Landfill, the Rumsey and Cortina Rancherias. EPA notified the governments of both tribes of this project and proposed site-specific rule, and both tribes expressed interest in being kept informed of the project as it progresses.

In the spirit of Executive Order 13175, and consistent with EPA policy to promote communications between EPA and tribal governments, EPA specifically solicits additional comment on this proposed rule from tribal officials.

I. Does this Rule Comply with the National Technology Transfer and Advancement Act?

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104-113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless such practice is inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (for example, material specifications, test methods, sampling procedures, and business practices) developed or adopted by voluntary consensus standard bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. This proposed rulemaking however, does not involve any voluntary consensus standards.

List of Subjects in 40 CFR Part 258

Environmental protection, landfill, solid waste.

_____ _____

Dated Christine Todd Whitman,

Administrator.

For the reasons set forth, part 258 of title 40 Chapter I of the Code of Federal Regulations is proposed to be amended as follows:

PART 258 - CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS [AMENDED]

1. The authority citation for part 258 continues to read as follows:

Authority: 33U.S.C. 1345(d) and (e); 42 U.S.C. 6902(a), 6907, 6912(a), 6944, 6945(c) and 6949a(c).

Subpart C – Operating Criteria

2. Amend §258.28 by:

a. Removing "or" at the end of paragraph (a)(1).

b. Removing the period at the end of paragraph (a)(2) and adding in it's place "; or".

c. Adding paragraph (a)(3).

The addition reads as follows:

§258.28 Liquid restrictions

(a)* * *

(3) The MSWLF unit is a Project XL MSWLF and meets the applicable requirements of §258.41. The owner or operator must place documentation of the landfill design in the operating record and notify the State Director that it has been placed in the operating record.

* * * * *

Subpart D – Design Criteria

3. Subpart D is amended by adding a new §258.41 to read as follows:

§258.41 Project XL Bioreactor Landfill Projects

(a) [Reserved]

(b) This section applies solely to Module D of the Yolo County Central Landfill owned and operated by the County of Yolo, California, or its successors. It allows the Yolo County Central Landfill to add bulk or noncontainerized liquid wastes to Module D under the following conditions:

(1) Module D shall be designed and constructed with a composite liner as defined in §258.40(b) and a leachate collection system that functions and continuously monitors to ensure that less than 30 centimeters depth of leachate is maintained over the liner.

(2) The owner or operator of the Yolo County Central Landfill must ensure that the concentration values listed in Table 1 of §258.40 are not exceeded in the uppermost aquifer at the relevant point of compliance for the landfill as specified by the State Director under §258.40(d).

(3) The owner or operator of the Yolo County Central Landfill shall demonstrate that the addition of any liquids to Module D does not result in an increased leakage rate, and does not result in liner slippage, or otherwise compromise the integrity of the landfill and its liner system, as determined by the State Director.

(4) The owner or operator of the Yolo County Central Landfill must ensure that Module D is operated in such a manner so as to prevent any landfill fires from occurring.

(5) The owner or operator of the Yolo County Central Landfill shall submit an annual report to the EPA Regional Administrator and the State Director. The first report is due within 18 months after the effective date of this rule. The report shall state what progress the Project XL is making towards the superior environmental performance as stated in the Final Project Agreement. The data in paragraphs (b)(5)(i) through (xvi) of this section may be summarized, but, at a minimum, shall contain the minimum, maximum, median, and average data points as well as the frequency of monitoring, as applicable. These reporting provisions shall remain in effect for as long as the owner or operator of the Yolo County Central Landfill continues to add liquid waste to Module D. Additional monitoring, recordkeeping and reporting requirements related to landfill gas will be contained in a permit executed by the local air quality management district pursuant to the Clean Air Act, 42 U.S.C. 7401 *et seq.* Application of this site-specific rule to the Yolo County Central Landfill is conditioned upon the issuance of such permit. The annual report will include, at a minimum, the following data:

(i) Amount of landfill gas generated;

(ii) Percent capture of landfill gas;

(iii) Quality of the landfill gas;

(iv) Amount and type of liquids applied to the landfill;

(v) Method of liquids application to the landfill;

(vi) Quantity of waste placed in the landfill;

(vii) Quantity and quality of leachate collected, including at least the following parameters, monitored, at a minimum, on an annual basis:

(A) pH;

(B) conductivity;

(C) dissolved oxygen;

(D) dissolved solids;

(E) biochemical oxygen demand;

(F) chemical oxygen demand;

(G) organic carbon;

(H) nutrients, (including ammonia ["NH_3"], total kjeldahl nitrogen ["TKN"], and total phosphorus ["TP"]);

(I) common ions;

(J) heavy metals;

(K) organic priority pollutants; and

(L) flow rate;

(viii) Quantity of leachate recirculated back into the landfill;

(ix) Information on the pretreatment of solid and liquid waste applied to the landfill;

(x) Landfill temperature;

(xi) Landfill moisture content;

(xii) Data on the leachate pressure (head) on the liner;

(xiii) The amount of aeration of the waste;

(xiv) Data on landfill settlement;

(xv) Any information on the performance of the landfill cover; and

(xvi) Observations, information, or studies made on the physical stability of the landfill.

(6) This section will remain in effect until [five years after the effective date of the final rule]. By [insert 5 years from the date of publication of the final rule], Yolo County Central Landfill shall return to compliance with the regulatory requirements which would have been in effect absent the flexibility provided through this Project XL site-specific rule. This section applies to Phase I of Module D. This section also will apply to any phase of Module D beyond Phase I only if a second Final Project Agreement that describes the additional phase has been signed by representatives of EPA Region 9, Yolo County, and the State of California. Phase I of Module D is defined as the operation of twelve acres of the twenty acre Module D.